

WHAT IS CLAIMED IS:

1. An elongated intracorporeal member that is MRI compatible, comprising:

an elongated core having an electrically non-conductive proximal core section and an essentially non-magnetic metallic distal core section;

5 a non-conductive connecting element securing together a distal end of the proximal core section and a proximal end of the distal core section; and

a metallic coil that is at least in part disposed about the distal core section.

2. The intracorporeal member of claim 1, wherein a distal end of the proximal core section and a proximal end of the distal core section have an undulated shape to effect a mechanical interlock with the non-conductive connecting element.

3. The intracorporeal member of claim 1, wherein the metallic coil includes a material having a volumetric magnetic susceptibility enabling observation of the intracorporeal member when subjected to MRI.

4. The intracorporeal member of claim 1, wherein at least one of the distal core section and the metallic coil is formed of a material having a volumetric magnetic susceptibility of less than about 280×10^{-6} (SI).

00024757-122601

5. The intracorporeal member of claim 1, wherein at least one of the distal core section and the metallic coil is formed of a material having a volumetric magnetic susceptibility of less than about 245×10^{-6} (SI).

6. The intracorporeal member of claim 1, wherein the distal core section includes one or more materials selected from the group consisting of platinum, nitinol, niobium, titanium, zirconium, iridium, aluminum, silver, gold, indium, and alloys thereof.

7. The intracorporeal member of claim 1, wherein the distal core section is dimensioned to exhibit negligible heating when exposed to MRI.

8. The intracorporeal member of claim 1, wherein the distal core section includes a continuous metallic portion having a length $L \leq 43.5/B_o$.

9. The intracorporeal member of claim 1, wherein the distal core section includes a continuous metallic portion having a length $L \leq 34.5/B_o$.

10. The intracorporeal member of claim 1, wherein the distal core section and the metallic coil define a length $L \leq 34.5/B_o$.

11. The intracorporeal member of claim 1, wherein the distal core section includes superelastic nitinol.

12. The intracorporeal member of claim 1, wherein the connecting element is formed at least in part of one or more thermoplastic polymeric materials selected from the group consisting of polyester, polyetheretherketone, ABS, epoxy, copolymers, and blends thereof.

13. The intracorporeal member of claim 1, wherein the connecting element is selected to enable the connecting member to hold the proximal core section and distal core section together to effect torque transmission and to provide a smooth transition between the respective sections.

14. The intracorporeal member of claim 1, wherein the distal core section is formed at least in part of one or more materials selected from the group consisting of platinum, nitinol, niobium, titanium, tantalum, zirconium, iridium, aluminum, silver, gold, indium, and alloys thereof.

15. The intracorporeal member of claim 1, wherein the proximal core section is formed of a non-conductive material selected from the group consisting of optical fibers, carbon fiber-epoxy composites, oriented polyethylene fiber composites, polyaramide fiber composites, resins, and combinations thereof.

DOCUMENT FILED
APR 22 1997
U.S. DISTRICT COURT
CLERK'S OFFICE
DETROIT, MICHIGAN

16. The intracorporeal member of claim 15, wherein the resins are materials selected from the group consisting of polyaryetherketone, polyphenylenesulfide, polyimide, and polyetheretherketone.

17. An elongated guide wire for intraluminal delivery of therapeutic or diagnostic devices, comprising:

an elongated core having an electrically non-conductive, non-metallic proximal core section having proximal and distal ends;

5 an essentially non-magnetic metallic distal core section having proximal and distal ends;

a torque transmitting junction between the distal end of the proximal core section and the proximal end of the distal core section; and

10 an essentially non-magnetic MRI visible coil that is at least in part secured to the distal core section.

18. The guide wire of claim 17, wherein the non-magnetic coil is formed of a material having a volumetric magnetic susceptibility that facilitates observation of the element when subjected to MRI.

19. The guide wire of claim 18, wherein the coil includes a material having a volumetric magnetic susceptibility of less than about 280×10^{-6} (SI).

20. The guide wire of claim 18, wherein the coil includes a material having a volumetric magnetic susceptibility of less than about 245×10^{-6} (SI).

TOP SECRET//SI//FOUO

21. The guide wire of claim 17, wherein the distal core section has a continuous metallic portion of not more than $L \leq 43.5/B_o$.

22. The guide wire of claim 17, wherein the distal core section has a continuous metallic portion of not more than $L \leq 34.5/B_o$.

23. The guide wire of claim 17, wherein the distal core section has at least two longitudinally disposed segments separated by a non-conductive junction.

24. The guide wire of claim 17, wherein the coil is formed at least in part of one or more materials selected from the group consisting of platinum, nitinol, niobium, titanium, tantalum, zirconium, iridium, aluminum, silver, gold, indium, and alloys thereof.

25. A method of performing an intracorporeal procedure within a patient, comprising:

providing a guide wire having an elongated core with a non-conductive proximal core section, an essentially non-magnetic distal core section, and an MRI
5 visible magnetic marker on the distal core section;

introducing the guide wire into a body lumen of the patient;

advancing the guide wire therein under MRI until the MRI visible magnetic member on the distal core section is disposed within a desirable location within the patient; and

TOP SECRET - MEDICAL

10 advancing a therapeutic or diagnostic device over the guide wire until an operative portion of the device is disposed at a location in which a therapeutic or diagnostic procedure is to be performed.

26. A method of performing an intracorporeal procedure within a patient, comprising:

providing an elongated intracorporeal device having an elongated non-conductive proximal section, a non-magnetic distal section and an MRI visible magnetic marker on the distal section;

introducing the intracorporeal device into a patient's body;
advancing the intracorporeal device therein under MRI until the MRI visible magnetic marker on the distal core section is disposed within a desirable location within the patient; and

10 performing a therapeutic or diagnostic procedure.

F034715-422604